

Before The  
**FEDERAL COMMUNICATIONS COMMISSION**  
 Washington, D.C. 20554

OCT 17 2000

FEDERAL COMMUNICATIONS COMMISSION  
 OFFICE OF THE SECRETARY

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 In The Matter Of )

Revision of the Commission's )  
 Rules to Ensure Compatibility with )  
 Enhanced 911 Emergency Calling Systems )  
 \_\_\_\_\_)

CC Docket No. 94-102

**REPLY COMMENTS OF QUALCOMM INCORPORATED**  
**IN SUPPORT OF PETITION FOR RECONSIDERATION**

QUALCOMM Incorporated ("QUALCOMM") hereby replies in support of the petition for reconsideration filed by the Association of Public Safety Communications Officials-International, Inc. ("APCO") of the grant of a waiver to VoiceStream Wireless ("VoiceStream") from the E9-1-1 Phase II rules in the Fourth Memorandum Opinion and Order, FCC 00-326, rel. Sept. 8, 2000 ("Fourth MO&O").

**I. Introduction**

The Commission granted a waiver to VoiceStream based on two findings: GSM carriers such as VoiceStream face unique circumstances in selecting location technology not of their own making because there is no compliant solution for deployment in the near-term, and the NSS/E-OTD technology proposed by VoiceStream promises substantial public safety benefits if it performs as planned. Fourth MO&O at ¶¶56,60. QUALCOMM would not oppose the waiver if the record supported these findings. That is not the case, however.

The submissions made after adoption of the Fourth MO&O demonstrate that the Fourth MO&O's two findings are not sustainable. First, VoiceStream's proposed non-compliant approach is not the only alternative available to GSM carriers even in the near term.

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VoiceStream has chosen for its own reasons not to pursue compliant solutions to avoid incurring the added costs of compliance which other carriers who follow the rules will incur. Second, VoiceStream's proposed E-OTD technology is unproven, substantially less accurate than compliant approaches rejected by VoiceStream, and certainly not ready for national deployment. The Commission should not grant a waiver just so that VoiceStream can experiment with a less expensive solution which impairs public safety in terms of reduced accuracy as compared to compliant solutions. The Commission should reconsider the grant of a waiver to VoiceStream.

VoiceStream will not suffer any prejudice from reconsideration based on the new submissions. Its Report shows that it has not entered into contracts with handset or infrastructure vendors for E-OTD; its testing of E-OTD is very preliminary; and it was apparent to VoiceStream that the grant of a waiver was subject to reconsideration. The notion that instability will ensue if the FCC reconsiders a waiver granted on an incomplete ex parte record by a 3-2 vote because new submissions have provided information undermining the grounds for the grant, as Nextel and Motorola, Nokia, and Ericsson contend, is not entitled to any weight. Granting reconsideration will establish that there is one set of rules applicable to all carriers, that those rules are technology-neutral, and the rules will not be waived for a carrier which has not exhausted all compliant alternatives or which proposes a solution that is far less robust or accurate than compliant alternatives which it has not exhausted.

Creation of a special exception to the rules for GSM carriers is not justified on this record. Denial of the waiver would not favor CDMA over GSM or penalize VoiceStream for not adopting QUALCOMM's technical approach, as VoiceStream claims without basis. VoiceStream Comments at 14-15. Denial of the waiver would establish one set of technology-

neutral rules for all carriers and encourage them to deploy compliant solutions on schedule rather than to seek waivers to deploy less accurate non-compliant approaches, which could take many years, if ever, to reach the level of accuracy necessary to protect the public.

**II. The Record Now Compels Reconsideration Because VoiceStream Has Chosen Not to Pursue Compliant Alternatives and Instead Has Adopted a Less Accurate Technology, Which May Never Produce the Requisite Accuracy**

The record now shows that the FCC must reconsider the grant of a waiver to VoiceStream. The record as developed following adoption of the Fourth MO&O directly undermines the two findings on which the grant was based, namely that: 1) GSM carriers, such as VoiceStream, face unique circumstances not of their own making in complying with the E9-1-1 Phase II requirements because VoiceStream's proposed non-compliant approach "may be the only method available for GSM carriers for compliance with Phase II for some time;" and, 2) the E-OTD technology proposed by VoiceStream, together with proposed NSS technology "may achieve substantial public safety benefits if it performs as planned. . ." Fourth MO&O at ¶¶56, 60.

As to the first finding, which VoiceStream calls "the bottom-line justification" for the waiver (Comments at i, 5), the record now shows that there are at least three compliant alternative technologies available to VoiceStream , and VoiceStream has chosen instead to adopt a non-compliant approach. Most notably, some time ago, Allen Telecom approached VoiceStream and offered to develop compliant approaches for VoiceStream, but VoiceStream turned them down. Allen Telecom Comments at 4. VoiceStream argues that Allen Telecom does not currently support GSM, but Allen Telecom states it could "adapt its existing technologies for use with GSM systems fairly quickly if requested by a carrier." Compare VoiceStream Comments at 10 with Allen Telecom Comments at 4 (emphasis added).

VoiceStream cannot contest Allen Telecom's statement that it could make available a compliant solution to VoiceStream in a fairly quick time frame, a time frame Allen Telecom says would be consistent with the FCC's requirements, because VoiceStream rejected the solution.<sup>1</sup> Allen Telecom Comments at 6. Sigma One Communications also offers an apparently similar compliant solution for GSM carriers. Ex. 1. The FCC should reconsider the grant of a waiver to VoiceStream. There is a reasonable alternative to a waiver, contrary to a core finding of the Fourth MO&O, and VoiceStream has not met its burden. 47 C.F.R. §1.925 (b)(2).<sup>2</sup>

The record also shows that VoiceStream abandoned a second compliant alternative, uplink TOA, which apparently at least until February 2000 had been marketed by a subsidiary of VoiceStream, because of its cost.<sup>3</sup> Declaration of Mark Cosgrove (appended to VoiceStream Comments) at ¶¶11, 13 ("Looking at the economic costs of deploying TOA, vendors and operators (both in the US and worldwide) have shied away from TOA."). The FCC should not and cannot grant a waiver to a carrier claiming the absence of any compliant alternative if, as here, the carrier decided on its own to abandon a compliant technology that one of its subsidiaries

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<sup>1</sup>By contrast, as for E-OTD, VoiceStream says that the first commercial location measurement units are not expected until the end of the 1<sup>st</sup> quarter of 2001, when it may be possible to have additional tests if network software is available. Cosgrove Declaration at ¶26.

<sup>2</sup>Allen Telecom's filing puts to rest VoiceStream's claim that denial of the waiver would penalize VoiceStream for not adopting QUALCOMM's approach. Comments of VoiceStream at 15. QUALCOMM is perfectly willing to compete with vendors of compliant solutions in the marketplace and urges the FCC to enforce technology-neutral, air interface-neutral rules.

<sup>3</sup>VoiceStream seeks to distance itself from Omnipoint Technologies, which VoiceStream sold in June 2000 and which had been marketing uplink TOA, but Omnipoint Technologies' new owner, Xircom, has a strategic alliance with VoiceStream. A VoiceStream representative sits on Xircom's board, and VoiceStream owns Xircom stock. If VoiceStream wanted to adopt uplink TOA, surely it could use its alliance and board seat to convince Xircom to become its supplier.

had been marketing because of the costs involved. There is no question that complying with the E9-1-1 rules will cause all carriers to incur substantial costs. It would be fundamentally unfair and unlawful for the FCC to grant a waiver so that carriers using one air interface, here GSM, can gain a cost advantage over others who have the misfortune of following the FCC's rules. See Melody Music, Inc. v. FCC, 345 F.2d 730, 733 (D.C. Cir. 1965).

VoiceStream has made no showing beyond mere conclusions as to any concrete action it took to implement assisted GPS, a third compliant solution. VoiceStream's claim that no handset manufacturer offers assisted GPS handsets begs the question. Ultimately, because it is the carriers who specify and purchase handsets and infrastructure equipment from vendors and not vice versa, it is the carriers who control purchasing decisions. If a new feature is not demanded by carriers, it is unlikely to become commercially available from vendors. Until a U.S. GSM carrier such as VoiceStream adopts assisted GPS by letting it be known that it is ready to place orders, no one can know whether or how soon manufacturers can turn out GPS-assisted handsets for U.S. GSM carriers. GSM carriers in Europe are testing this technology, and it only stands to reason that handset manufacturers would produce suitable handsets quickly if a nationwide carrier placed orders.<sup>4</sup>

As for the promised substantial public interest benefits from VoiceStream's proposal, VoiceStream's Comments make clear that it has only engaged in "preliminary tests" of E-OTD; that the results to date are just "preliminary results from the first phase of the test;" are not proof that NSS/E-OTD would meet the Commission's requirements;" and, E-OTD merely "has the

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<sup>4</sup>Finally, U.S. Wireless Corporation apparently offers a complaint network solution that "works with any wireless standard. . ." Ex.2. VoiceStream has not exhausted its alternatives.

potential to meet the Phase II accuracy requirements. VoiceStream Comments at i, 4.

VoiceStream's Comments establish that it does not know whether E-OTD will ever produce the accuracy required by the Commission's rules.

It is impractical and naive to believe that this is not a serious problem because VoiceStream will be required to deploy a different location technology that meets the FCC's requirements if it turns out that VoiceStream's E-OTD cannot meet the accuracy and timing conditions of the waiver. Cf. Fourth MO&O at ¶68; Comments of AT&T Wireless at 4. The public could suffer for years if it turns out that, as found in the July 1999 Technical Report prepared by eight experts with Omnipoint Technologies, E-OTD fails to constitute a robust, reliable location solution. See Ex. 1 to QUALCOMM Comments. Indeed, the July 1999 Omnipoint Technologies Technical Report demonstrated major technical deficiencies in E-OTD and that uplink TOA would yield location information with far fewer errors. VoiceStream's opposition states that the Technical Report was not a marketing document. VoiceStream Comments at 8. QUALCOMM agrees. But, the Technical Report was a serious review and comparison of E-OTD and uplink TOA, and VoiceStream makes no showing the Technical Report is inaccurate in any way in identifying major sources of error in E-OTD or in concluding that uplink TOA would be much more accurate than E-OTD.<sup>5</sup>

The October 2, 2000 Status Report submitted by VoiceStream sheds no new light on E-OTD technology and provides no new information as to VoiceStream's progress. In fact, the

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<sup>5</sup>VoiceStream makes much of a letter from Nokia supposedly confirming that there is no compliant solution for GSM., ignoring Allen Telecom's technology and others, and referring to Nokia's tests of E-OTD. Nokia's tests were among those cited to support the findings of serious deficiencies with E-OTD. Ex. 1 to QUALCOMM Comments at 27.

VoiceStream Report shows that VoiceStream has yet to sign a contract with a handset or infrastructure vendor. In short, the Commission has granted a waiver so that VoiceStream can deploy what appears to be an inferior technology, without any objective evidence to the contrary.

The record does not reflect special circumstances here. In seeking to comply with the Commission's rules, the conditions faced by VoiceStream are no more unique or uncertain than those faced by other carriers. All carriers face uncertainty in deciding which location technology to deploy because no location technology has yet been deployed commercially in the United States. All carriers, just like VoiceStream, can claim uncertainty about the availability, cost, or performance of location technology. This record now establishes that VoiceStream has had and continues to have compliant alternatives to a waiver, which it has chosen not to pursue for its own reasons. The Commission should reverse the grant of a waiver to VoiceStream.

### **III. Granting a Waiver to VoiceStream Discourages the Quick Deployment of Compliant Solutions**

The real vice of the grant of a waiver to VoiceStream based on the record as it now stands is that, absent reconsideration, it would discourage carriers from quickly deploying compliant solutions, precisely the result that the Commission wishes to avoid. Fourth MO&O at ¶17 ("The Commission's wireless E911 rules are intended to meet important public safety needs as quickly as possible.") QUALCOMM's continuing interest in this matter has been to seek Commission rules that would, in a technology-neutral manner, spur rapid deployment of compliant solutions.

AT&T Wireless' statements that "QUALCOMM's touted system, however, is not ready for deployment and may not be for some time" and that "QUALCOMM wants to force carriers to implement solutions to slow the pace of Phase II implementation, such as network-overlay systems that require extensive and complex modifications to mobile networks" must be put to

rest. Comments of AT&T Wireless at 4-5. QUALCOMM is ahead of schedule in producing MSM3300 chips with its wireless assisted GPS solution, having shipped samples on August 15th, over a month early. Releases of software are on track. QUALCOMM anticipates that deployment of wireless assisted GPS handsets will begin in the second quarter of 2001 in Japan and by October 1st here. More than ten major manufacturers are now licensed to make assisted GPS phones with the MSM3300, and QUALCOMM expects to add additional licensees shortly.

QUALCOMM has no interest in forcing carriers to adopt network solutions (it does not market such solutions); a carrier adopting a network solution would be less likely to switch to a handset solution. QUALCOMM and its Snap Track subsidiary, which have spent years developing and licensing technology and designing and producing ASICs and software for what they consider to be the most accurate location technology, are happy to compete against suppliers of network or handset solutions so long as they comply with the FCC's rules. QUALCOMM does not need or want to "force" carriers to do anything. But, QUALCOMM believes that carriers should follow the FCC's rules, and those rules should not favor any air interface.

QUALCOMM's concern with the VoiceStream waiver is not that VoiceStream has adopted another technology, but that it will encourage other carriers to seek waivers, a concern that does not appear to be academic now that AT&T Wireless and Nextel are both defending the grant of a waiver to their supposed competitor VoiceStream.

#### **IV. The Grant of the Waiver Was Procedurally Improper**

VoiceStream does not successfully rebut QUALCOMM's argument that the grant of the waiver request was procedurally improper. The FCC has the power to grant a waiver, but not to grant a waiver request which fails to meet the legal standards applicable to waiver requests. See,



e.g., Northeast Cellular Telephone Company, L.P. v. FCC, 897 F.2d 1164 (D.C. Cir. 1990); WAIT Radio v. FCC, 418 F.2d 1153, 1157 (D.C. Cir. 1969). VoiceStream points to Aerial's waiver request, but that request sought permission to deploy a handset solution, not the waiver VoiceStream now seeks.

VoiceStream calls its June 15, 2000 ex parte presentation a waiver request, but that document does not meet the legal standards for a waiver request, including the requirements of pleading with particularity in a specific pleading the facts and circumstances which warrant a waiver with concrete support, and showing that the underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a waiver would be in the public interest; or in view of unique or unusual factual circumstances of the case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative. Saddleback Community College, 11 FCC Rcd 11938, 11941 (1996); WAIT Radio v. FCC, 418 F.2d at 1157; 47 C.F.R. §1.925(b)(3).

#### **IV. Conclusion**

Wherefore, for the foregoing reasons, QUALCOMM respectfully requests that the Commission reconsider and reverse the grant of a waiver to VoiceStream.

Respectfully submitted,

By: 

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**CERTIFICATE OF SERVICE**

I, Dean R. Brenner, do hereby certify that a true and correct copy of the foregoing "Reply Comments of QUALCOMM Incorporated" was served by mail this 17<sup>th</sup> day of October 2000, to:

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## Press Room

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### *For Immediate Release:*

#### **SIGMAONE ANNOUNCES DEVELOPMENT OF BREAKTHROUGH GSM LOCATION SYSTEM**

**Network Based Solution Will Achieve Better than 300 Foot Accuracy for GSM Consumers and Operators in the United States and Worldwide -**

NEW ORLEANS, Feb. 28, 2000 -- SigmaOne Communications Corp., a leading provider of location systems and services for wireless carriers and the wireless Internet, today announced the development of the company's wireless location system for GSM carriers in the United States and Europe. The Sigma 5000 GSM network-based location system offers global GSM carriers a multi-band capability covering the 1900 Mhz PCS band in the US, as well as both the 1800 Mhz DCS and 900 Mhz in Europe. Designed to operate as either a fully independent overlay or as a standardized T1P1 compliant location system, the Sigma 5000 GSM system will be available for commercial system deployment by the first quarter of 2001.

"By offering the industry's only network-based location solution, SigmaOne is setting the standard in wireless location technology," said Mark Licht, president of SigmaOne.

"The Sigma 5000 GSM is a breakthrough locate system that gives U.S. and European carriers the competitive advantage of not having to upgrade or retro-fit existing hardware. The Sigma 5000 GSM system also gives global carriers stronger coverage, better reliability and most importantly, better efficiency than current GSM systems."

The Sigma 5000 GSM system is designed to locate all GSM subscribers to better than 300 feet without requiring any modifications to existing handsets. Through a unique combination of its patent-pending TDOA and AOA PowerBoost<sup>®</sup> Technologies, the Sigma 5000 GSM system increases location accuracy by up to 50 percent over competing systems and dramatically improves system availability in the most difficult urban, rural and in-building environments. By combining its ability to track reverse control and voice channels with its ability to process multiple signals simultaneously, the Sigma 5000 GSM system has the capacity of making more than a million location measurements per minute in a typical cellular network.

This unique combination of high accuracy, reliability and capacity will allow SigmaOne to deliver a new generation of highly accurate location based services including E- 911, fleet management, mobile yellow pages, driving directions, location based traffic information and location sensitive billing to consumers and wireless carriers worldwide.

***About SigmaOne Communications Corp.***



SigmaOne Communications Corporation is a leading provider of analog and digital wireless location systems and location based services for the cellular and PCS industries in the United States and internationally. With its strategic partners SigmaOne is developing applications that will enable mobile location based services for the consumer and corporate markets. With offices in Los Angeles, New York and Tel Aviv, the company offers high capacity, low-cost, turnkey location networks and services for wireless carriers, internet providers, infrastructure vendors and public safety answer points (PSAPs). SigmaOne is a partnership between Koor Ltd., a \$3.5 billion investment holding company, Tadiran Ltd., one of Israel's largest electronics companies and KL LLC. For more information about SigmaOne Communications Corp, visit the SigmaOne Web page at <http://www.sigma-1.com>



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# Technology

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***Correlative Technology***  
***TDOA and AOA Combination***  
***Sigma-5000 Network-Based***  
***Sigma-5000 TDOA/AOA***  
***Location Availability***  
***TDOA Technology***  
***Rural Coverage***  
***Moving Vehicles***  
***Network Accuracy***  
***Location Capacity***  
***Live Demo & Trials***

**Offering Network Based Location Solutions for  
AMPS, TDMA, CDMA & GSM**

**Providing a Gateway for E-911 and Value Added  
Location Services**

## **SigmaOne's Correlative TDOA/AOA Technology**

Based upon extensive research and development and ***live field trials*** with operators in the US and internationally, SigmaOne has developed a proprietary TDOA/AOA technology that meets both the Federal Communication Commission (FCC) stringent location performance requirements, plus the wireless carriers' need for robust, value-added location services.







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## **Hilsenrath Commends FCC on Re-Affirming E-911 Implementation Date of October 2001**

**San Ramon, CA, September 12, 2000**— U.S. Wireless Corp. (Nasdaq NMS: USWC, Frankfurt: USP) chairman and chief executive officer Oliver Hilsenrath today commended the Federal Communications Commission for staying the course on its mandate that all the critical elements of its “phase II” deployment requirements for wireless E-911 be implemented by October 1, 2001.

In its “fourth memorandum opinion and order,” issued September 8, 2000, the FCC affirmed all of the critical elements of its phase II deployment requirements of its wireless enhanced 911 (E-911) rules, while making certain minor adjustments to simplify and clarify its wireless E-911 rules.

In the order, the FCC acknowledged the availability of automatic location information solutions that offer wireless carriers a reasonable prospect for compliance with its E-911 phase II requirements. The order cited successful field trials of automatic location information technologies, including the State of Montana’s field trial of U.S. Wireless’ Location Pattern Matching technology and the company’s trial of its network-based Code Division Multiple Access (CDMA) location network in Baltimore.

Mr. Hilsenrath said, “The FCC has recognized the importance of public safety and the responsibility of the E-911 industry. We commend the FCC in remaining steadfast in its deadline of October 1, 2001 and their recognition that wireless caller location technology is available today that can save lives.”

Hilsenrath also said, “U.S. Wireless is building a national wireless location network that will enable wireless carriers to provide emergency caller location, which will save lives as well as property, speeding emergency response to critical situations such as medical emergencies.”

U.S. Wireless Corp.’s caller-location system, the RadioCamera™ system, is a network-based solution that uses U.S. Wireless’ proprietary Location Pattern Matching™ (LPM) technology. The RadioCamera system locates and tracks wireless callers, and can thereby enable wireless carriers to comply with Phase II of the Commission’s “E-911 Mandate.” The RadioCamera system and Location Pattern Matching technology does not rely on triangulation, and is able to locate

wireless callers from a single point of reference or base station.

The RadioCamera system's network-based technology works with any wireless standard (analog and digital), and provides universal coverage to all subscribers, including "roamers". The RadioCamera system is also compatible with any wireless device and does not require the costly replacement of existing cellular phones.

The RadioCamera system's Location Pattern Matching technology overcomes challenges associated with locating wireless callers in urban environments, where line of sight between the wireless subscriber and multiple cell sites or satellites may be obstructed, and in rural environments, where a sufficient number of cell sites may not be optimally located to perform triangulation. From a single point of reference or cell site, RadioCamera™ technology is able to form a direct correlation between radio frequency patterns and a caller's geographic location, accurately locating wireless subscribers in challenging urban and rural environments where other location technologies fail.

### **About U.S. Wireless**

U.S. Wireless provides mobile location and traffic related information to wireless carriers, Internet providers, public safety, and transportation/tele-matics companies.

U.S. Wireless is building a national location network and has announced plans to roll out traffic and transportation services in San Diego, Washington, D.C, Hampton Roads, VA, and the Greater San Francisco Bay area. The Company's network is based on its award-winning RadioCamera™ pattern matching positioning technology that pinpoints the location of cellular callers to enable the delivery of mobile services that rely on location, including life saving emergency 911 caller location, live traffic and traveler information, navigation assistance, localized directory assistance, and vehicle and asset tracking.

More information on U.S. Wireless and the RadioCamera™ network can be found at the Company's website at [www.uswcorp.com](http://www.uswcorp.com).

*NOTE: RadioCamera™s a trademark of U.S. Wireless Corporation.*

Special Note Regarding Forward-Looking Statements: A number of statements contained in this press release which are not historical in nature are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve risks and uncertainties that could cause actual results to differ materially from those expressed or implied in the applicable statements, including, among others, the size and scope of the geolocation services market, the timing of governmental requirements and the success of the company in this market. A description of these and other risks and uncertainties can be found in the company's filings with the Securities and Exchange Commission.

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